

ADMIRALTY SURFACE WEAPONS ESTABLISHMENT

CV2499

Specification AD/CV2499 Issue No. 1 reprint "A" dated 23.3.60. To be read in conjunction with K1001	<u>SECURITY</u>	
	<u>Specification</u> Unclassified	<u>Valve</u> Unclassified

→ Indicates a change

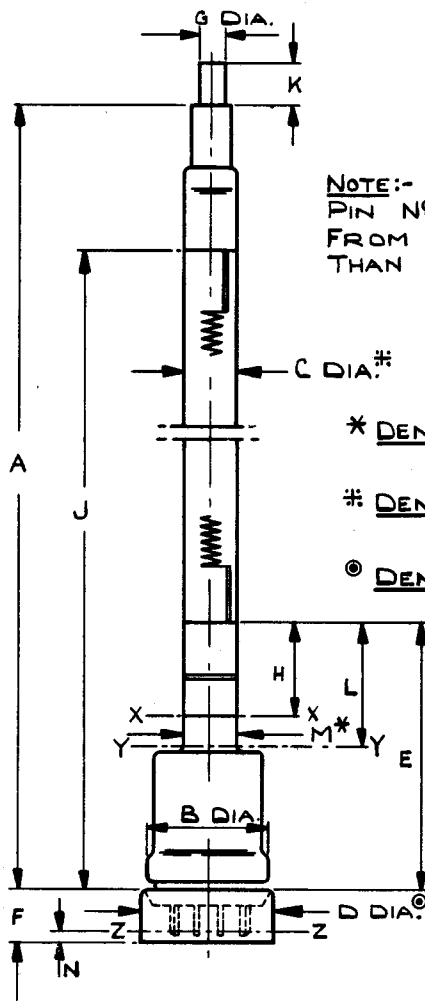
<u>TYPE OF VALVE</u> Travelling-wave amplifier		<u>MARKING</u> See K1001/4	
<u>CATHODE</u> Indirectly heated		<u>BASE</u> B9A	
<u>ENVELOPE</u> Glass			
<u>PROTOTYPE</u> VX7147			
<u>RATING</u>		<u>CONNECTIONS</u>	
		<u>NOTE</u>	<u>PIN</u> <u>ELECTRODE</u>
→ Heater Voltage (V)	6.3		1 Anode 2
→ Heater Current (A)	0.95		2 Anode 1
→ Max. Grid Voltage Vg (V)	-25	A	3 I.C.
→ Max. First Anode Voltage, Va1 (V)	350		4 Heater
→ Max. Second Anode Voltage, Va2 (V)	375		5 Grid
→ Max. Helix Voltage, Va3 (V)	475		6 Heater Cathode
→ Max. Collector Voltage, Va4 (V)	550		7 Heater Cathode
→ Max. Collector Current Ia4 (mA)	5		8 I.C.
→ Max. First Anode Current Ia1 (mA)	250		9 Anode 3 (helix)
→ Max. Second Anode Current Ia2 (mA)	250		End Cap =
→ Max. Helix Current Ia3 (mA)	500	A	Collector.
→ Frequency Coverage (Mc/s)	2,500 to 4,100		Signal Input
→ Low Level gain (dB)	35	B	and output by
→ Max. Power output (mW)	120		50 Ω coaxial
→ Max. Noise factor (dB)	21.5		line.
→ Focusing field strength (Oersteds)	520	C	
→ Min. Cold transmission loss (dB)	55		
<u>NOTES</u>			
A. The grid voltage and circuit deflection system are adjusted for minimum helix current at the specified field strength.			
B. With helix voltage adjusted to optimum value $\pm 5V$ .			
C. When operated in the approved circuit (see note 1 on page 2) the current in the field coils giving this field strength is 7.5 amps.			

To be performed in addition to those applicable in K1001

	Test Conditions							Test	Limits		No. Tested	Note	
	Vh (V)	Vg (V)	Va1 (V)	Va2 (V)	Va3 (V)	Va4 (V)	Ia4 (mA)		Min.	Max.			
a	6.3	0	0	0	0	0	0	Heater Current (Amps)	0.8	1.1	100%	2	←
b	6.3			300	420	520	4	(i) 1st Anode Voltage (V) (ii) Grid Voltage (V) (iii) 1st Anode Current (μA) (iv) 2nd Anode Current (μA) (v) Helix Current (μA)	150 0 -250 -250 -500	325 -25 -250 -250 -500	100% 100% 100% 100% 100%	1,3	← ← ←
c	6.3	as in test b	Adjust	300	420	520	5	No oscillation to be detected			100%	1,4	
d	6.3	as in test b	as in test b	300			Va3+100V 4	Optimum helix voltage (max. gain) (V)	375	450	100%	1	
e	6.3	" "	" "		as ind		4	Optimum 2nd anode voltage (min. noise factor) (V)	150	375	100%	1	←
f	6.3	" "	" "	as in e	"		4	Low level gain (dB)	28	-	100%	1,5	
g	6.3	" "	" "	" "	" "		4	Noise figure (dB)	-	21.5	100%	1,6	
h	6.3	" "	" "	" "	" "		4	Max. power output (mW)	50	-	100%	1,6	
j	0				0		0	Cold attenuation (dB)	55	-	100%		

NOTES

1. Tests to be performed with the valve in an approved circuit, the details of which are available from the specifying authority.
2. Heater current should be read at least one minute after switching on.
3. Adjust grid voltage and circuit deflection system for minimum helix current.
4. Helix voltage to be swept at 50 c.p.s by 50 volts r.m.s. and the output through a crystal shall be applied to the vertical deflection plates of a C.R.O., with a voltage of the same phase and frequency as the helix sweep providing the horizontal deflection. This test to be performed with and without a R/F drive.
5. Gain to be measured at 2500 and 4100 Mc/s with not greater than 10 μW input.
6. To be measured at 2500 and 4100 Mc/s.



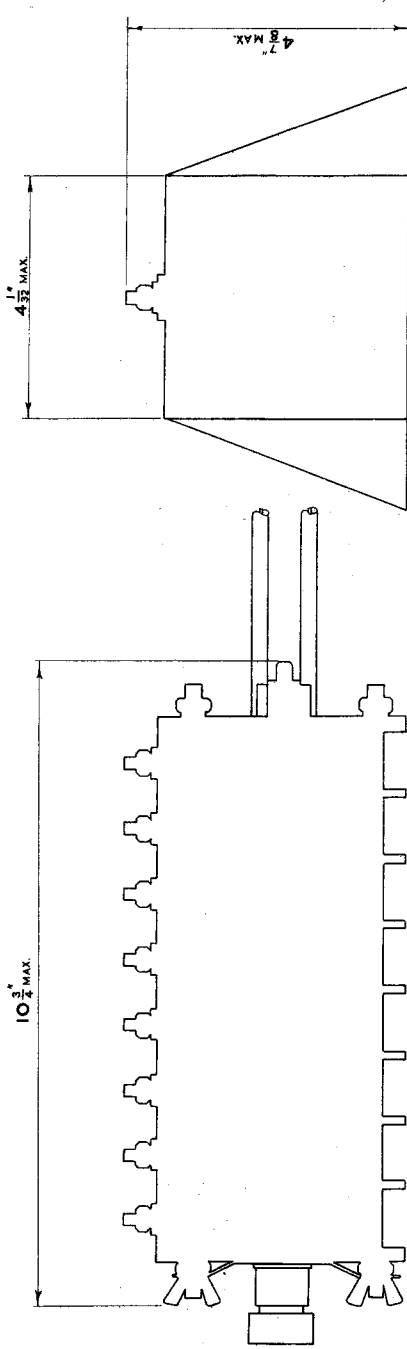
NOTE:- CHOKE SPIGOTS AND PIN N°1 WILL NOT DEVIATE FROM THE COMMON  $\perp$  BY MORE THAN 15° IN EITHER DIRECTION.

\* DENOTES:- DIM. M APPLIES ONLY BETWEEN LINES X-X AND Y-Y.

# DENOTES:- DIM. C APPLIES ONLY DOWN TO LINE X-X.

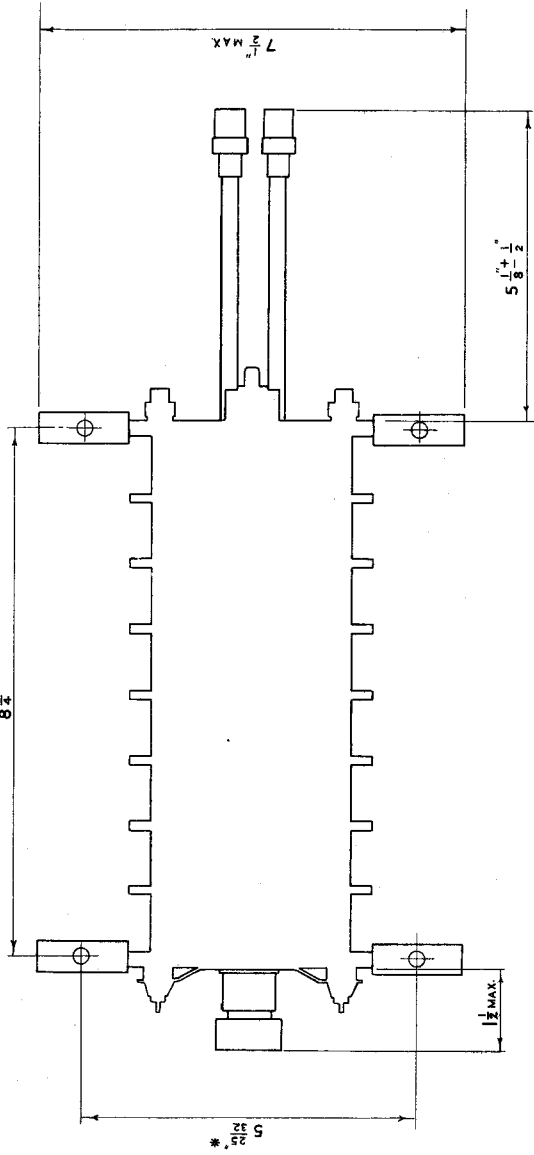
⊙ DENOTES:- DIM. D APPLIES ONLY DOWN TO LINE Z-Z.

DIM.	MILLIMETRES	INCHES	DIM.	MILLIMETRES	INCHES
A	207.32 ± 0.63	8.162 ± 0.025	G	5.99 ± 0.18	0.236 ± 0.007
B	23.24 MAX.	0.915 MAX.	H	18.42 MIN.	0.725 MIN.
C	9.27 MAX.	0.365 MAX.	J	179.83 ± 0.38	7.080 ± 0.015
D	25.30 ± 0.18	0.996 ± 0.007	K	7.62 ± 0.76	0.300 ± 0.030
E	48.26 ± 0.29	1.900 ± 0.035	L	22.99 MIN.	0.905 MIN.
F	10.16 ± 0.63	0.400 ± 0.025	M	10.29 MAX.	0.405 MAX.
			N	1.59 MAX.	0.063 MAX.



CV2499/1A/4

**NOTE**  
 CIRCUIT MUST BE FITTED IN  
 HORIZONTAL POSITION AT ALL TIMES  
 \*O.B.A. FIXING HOLE DIMS. ARE  
 APPROXIMATE. DRILL MATING HOLES  
 IN POSITION.  
 THIS DRAWING IS SHOWN TO GIVE  
 PROSPECTIVE USER INFORMATION  
 ON THE SOLENOID OUTLINE  
 DIMENSIONS.



OUTLINE DIMENSIONS OF SOLENOID